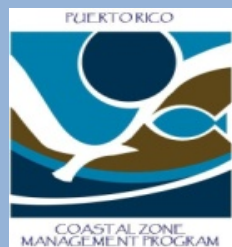




The Puerto Rico Climate Change Council Collaborates to Assess Vulnerabilities *Quijotesco* or a Success?

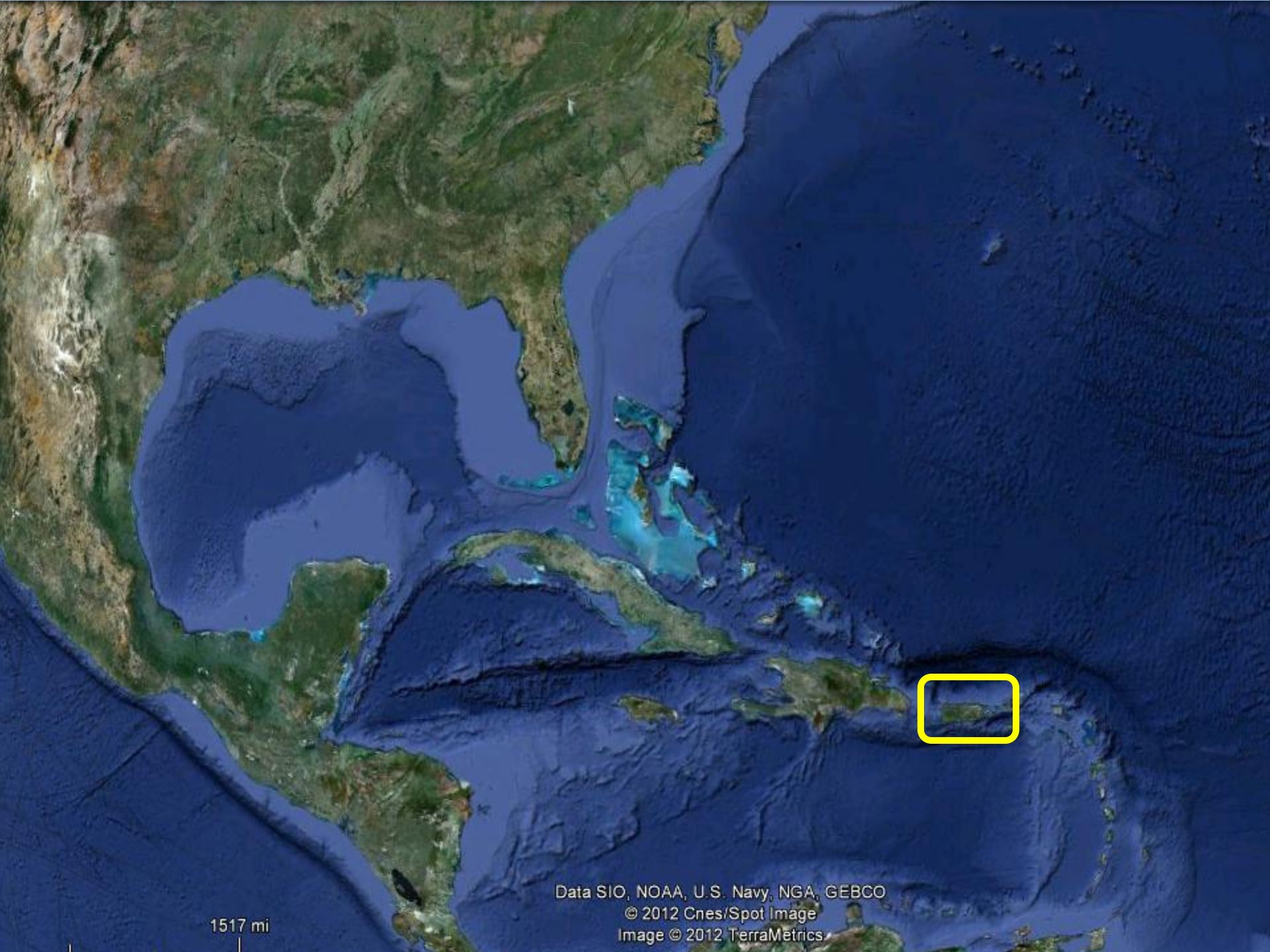
Kasey R. Jacobs
PRCCC Executive Secretariat
National Adaptation Forum
April 2013





Presentation Outline:

1. Borinquen/Boriken 101
2. The PRCCC's Process & Results Summary
3. Challenges
4. ¿Quijotesco o un éxito?



1517 mi

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2012 Cnes/Spot Image
Image © 2012 TerraMetrics



The Island of Enchantment





























CLIMATE CHANGE EFFORTS IN PUERTO RICO

- Greenhouse Gas Inventory (1996)
- 2007 Climate Change Declaration by Scientists to Government and Citizens of Puerto Rico
- 2007 and 2009 Roundtables on Climate Change (Dr. Rafael Mendez Tejeda, UPRM and Dr. Ruperto Chaparro, Sea Grant; Group of 33)
- 2008 Puerto Rico Global Warming Law and Commission (Executive Order)
- White House Task Force on Climate Change and the National Climate Assessment – U.S. Caribbean included for 2013!!
- **PRCZMP Coastal Adaptation Project (2010)**
- DOI Caribbean Landscape Conservation Cooperative (2010)
- Coastal Areas Climate Change Education Partnership (CACCE) (2010)
- San Juan Bay Estuary Program and Jobos Bay NERR vulnerability assessments in progress (2013-2015)



Puerto Rico Coastal Adaptation Project* :

Primary outputs will be:

- 1. Vulnerability Assessment for multiple sectors**
- 2. Recommended Adaptation Strategies and Policies**



*Submitted by PRCZMP approved by NOAA-CSC (2009)



Recruit critical partners and develop the collaboration process

- Launched PRCCC and created four working groups
- Agreed on the process, guiding principles, and a vision for Puerto Rico
- Agreed on the sectors to be assessed
- Created the PR-CC-Listerv



Systematically collect data and knowledge

- Analyze historic trends and future possible climate projections (WG1)
- Create PR Climate Change Research Library
- Preliminary/Qualitative Assessment with expert input (WG 2 and WG 3)
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Risk Assessment Workshops with Municipalities

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- Outputs: Risk Matrices of Infrastructure Assets most at-risk



Complete Vulnerability Assessment

- Complete Draft Vulnerability Assessment Report
- External peer-review
- Final design and layout
- Publish in Spanish and English



Recommend adaptation strategies and implement outreach plan

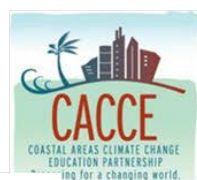
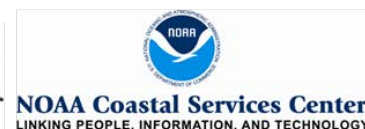
- Identify/develop, evaluate, and prioritize adaptation strategies and policies through workshops and expert advice
- Finalize reports and create executive summaries
- Outreach and education of the key vulnerabilities and adaptation options for Puerto Rico

**August
2013**

Recruit critical partners and develop
the collaboration process...



***Puerto Rico Climate Change Council
(PRCCC)***



Recruit critical
partners and develop
the collaboration
process

- Launched PRCCC and created four working groups
- **Agreed on the process, guiding principles,
and a vision for Puerto Rico**

Researched collaboratively created vulnerability
assessments in the United States, Latin
America and islands around the world



Safe



Healthy



Sustainable



Productive

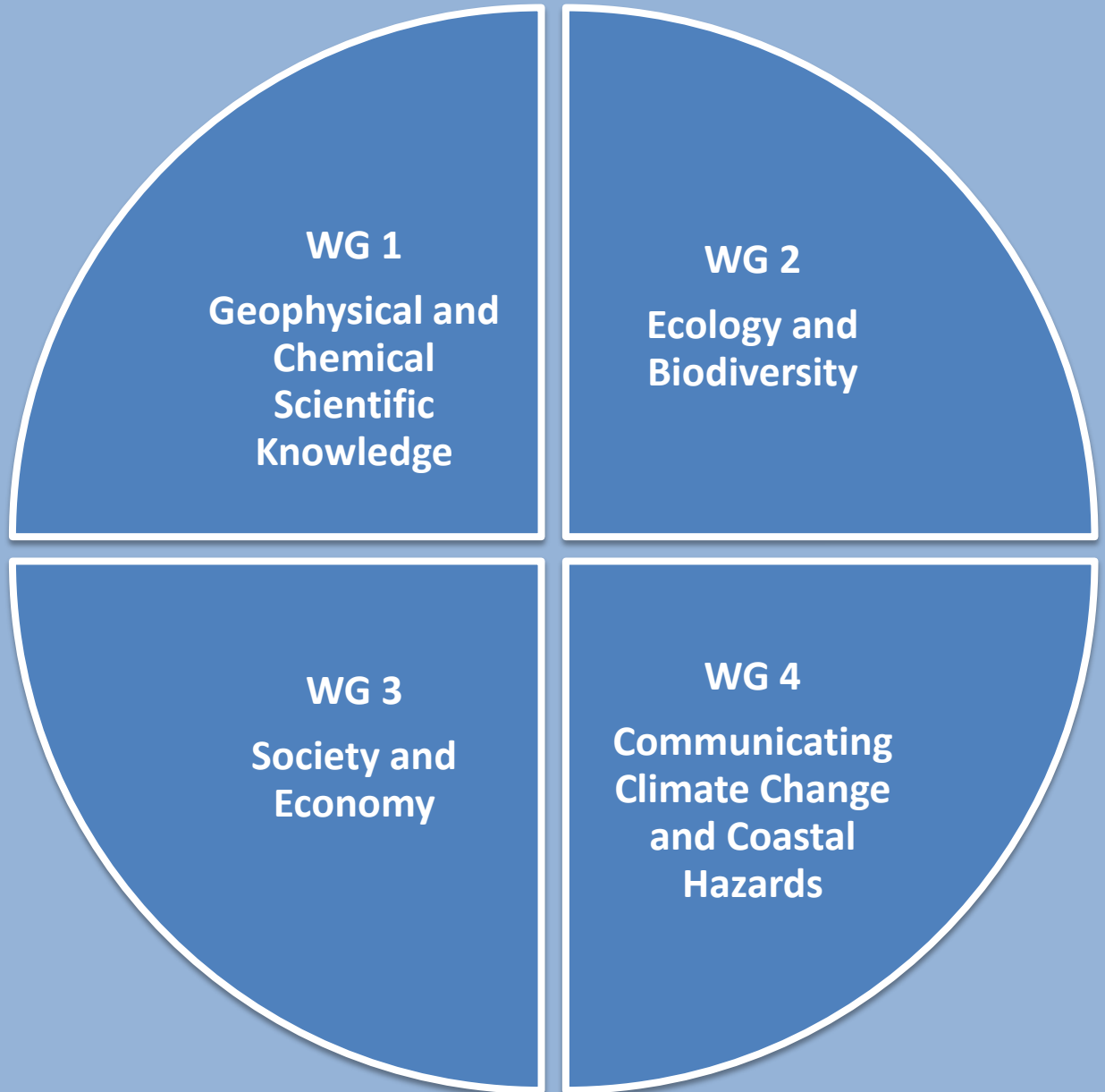


Resilient

PRCCC Vision and Objectives

- To use the best available scientific knowledge to identify the communities and ecosystems most at-risk from coastal hazards and climate change.
- To identify, assess, develop, and prioritize effective adaptation strategies and policies that could be implemented in Puerto Rico.
- To communicate findings, consensus, and recommendations to government, civil society, the media, and the private sector.
- To cultivate a well-informed Puerto Rican society about coastal hazards, climate change adaptation and mitigation.

4 Working Groups of the Puerto Rico Climate Change Council (PRCCC)



Historic Trends and Possible Future Climate Conditions for:

Air and Sea Surface Temperatures

Precipitation

Extreme Events (downpours, droughts)

Sea Level Rise

Tropical Storms and Hurricanes

Ocean Acidification

**WG 1: Geophysical and Chemical
Scientific Knowledge**

WG 2: Ecology and Biodiversity

Beach Ecosystems

Wetlands

Coral Reefs

Submerged Aquatic

Vegetation

Lagoons/Biobays

Cays and Islets

Amphibians and Reptiles

Sea Turtles

Marine Mammals

Avian Species

Coastal Fish

Pelagic Fish

Forests (coastal forests,
Caribbean National forest, dry
forests, etc)



WG 3: Society and Economy

Economic Development

Livelihoods

Tourism and Recreation

Manufacturing

Cinema

Fisheries

Energy

Coastal Communities

Water resources

**Historical and Cultural
Preservation**

Population Growth and

Development Trends

Social Vulnerability

Health



WG 4: Communicating Climate Change and Coastal Hazards



Puerto Rico Cambios Climáticos/Climate Chang Listserv (PR-CC-L)

Search this group

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DISCUSSIONS

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Group info

Members: 113

 **Discussions** 9 of 20 messages [view all](#) »

+ new post

[Agenda and Documents for tomorrow's meeting](#)

By Kasey Jacobs - 11:18am - 1 author - 0 replies

[First document for April 6th Meeting](#)

By Kasey Jacobs - Mar 25 - 1 author - 0 replies

[Save the Date - April 6 - Puerto Rico Climate Change Meeting](#)

By Kasey Jacobs - Mar 23 - 2 authors - 1 reply

[A Growing Role for Social Sciences in Climate Change Dialog](#)

By Kasey Jacobs - Feb 22 - 1 author - 0 replies

[Free Webinar by FWS-OUT8041: Intro to Communicating Climate Change - A Webinar Series for Communicators](#)

By lilibeth_serr...@fws.gov - Feb 14 - 1 author - 0 replies

[Fw: New report released: The State of Marine and Coastal Adaptation in North America: A Synthesis of Emerging Ideas](#)

By kjac...@dma.gobierno.pr - Feb 9 - 1 author - 0 replies

[RealClimate Blog by Climate Scientists](#)


By Kasey Jacobs - Feb 1 - 1 author - 0 replies

[Video Talk on Climate Change and Ocean Ecosystems by Ove Hoegh-Guldberg for NCSE](#)


By Kasey Jacobs - Jan 27 - 1 author - 0 replies

[New PR Coral and Global Warming article in Ecosphere](#)


By Kasey Jacobs - Jan 25 - 1 author - 0 replies

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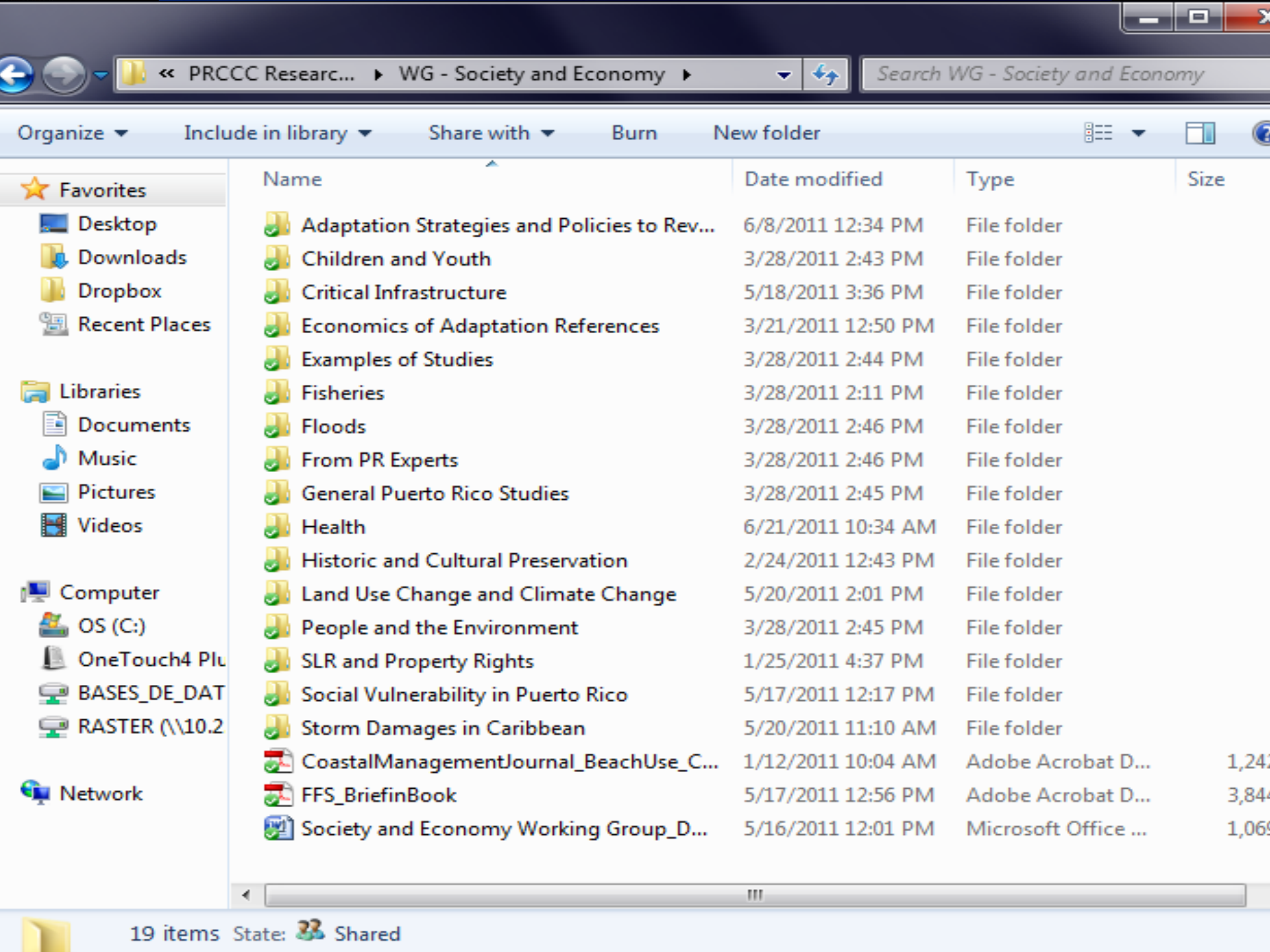
 nina.garfi...@noaa.gov
Member

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Systematically collect data and
knowledge...



PRCCC Research... WG - Society and Economy

Search WG - Society and Economy

Organize Include in library Share with Burn New folder

Favorites

- Desktop
- Downloads
- Dropbox
- Recent Places

Libraries

- Documents
- Music
- Pictures
- Videos

Computer

- OS (C:)
- OneTouch4 Plu
- BASES_DE_DAT
- RASTER (\\10.2

Network

Name	Date modified	Type	Size
Adaptation Strategies and Policies to Rev...	6/8/2011 12:34 PM	File folder	
Children and Youth	3/28/2011 2:43 PM	File folder	
Critical Infrastructure	5/18/2011 3:36 PM	File folder	
Economics of Adaptation References	3/21/2011 12:50 PM	File folder	
Examples of Studies	3/28/2011 2:44 PM	File folder	
Fisheries	3/28/2011 2:11 PM	File folder	
Floods	3/28/2011 2:46 PM	File folder	
From PR Experts	3/28/2011 2:46 PM	File folder	
General Puerto Rico Studies	3/28/2011 2:45 PM	File folder	
Health	6/21/2011 10:34 AM	File folder	
Historic and Cultural Preservation	2/24/2011 12:43 PM	File folder	
Land Use Change and Climate Change	5/20/2011 2:01 PM	File folder	
People and the Environment	3/28/2011 2:45 PM	File folder	
SLR and Property Rights	1/25/2011 4:37 PM	File folder	
Social Vulnerability in Puerto Rico	5/17/2011 12:17 PM	File folder	
Storm Damages in Caribbean	5/20/2011 11:10 AM	File folder	
CoastalManagementJournal_BeachUse_C...	1/12/2011 10:04 AM	Adobe Acrobat D...	1,24
FFS_BriefinBook	5/17/2011 12:56 PM	Adobe Acrobat D...	3,84
Society and Economy Working Group_D...	5/16/2011 12:01 PM	Microsoft Office ...	1,06

19 items State: Shared

Descriptive Vulnerability Assessments

WORKING GROUP 2 REPORT: SOCIETY AND ECONOMY
PUERTO RICO CLIMATE CHANGE COUNCIL - DRAFT - NOT FOR DISTRIBUTION OR CITATION

strongly affected by salinity in mangrove Laguncularia Cabezas Reserve and 10 cm) of 344 stems ha-1) (Gould et al. 2000)

Pterocarpus fores

Tropical forested important ecosystems biogeochemical opportunities, In the Caribbean occur in topographic coastal areas floodplains, Early assessments

species covering most of the island. However, during the early 1900s deforestation driven by coal harvesting and sugar cane

Lowland moist forests are found on substrates other than limestone and woodlands on substrates other than limestone of the island. These are typically secondary forests regenerating

WORKING GROUP 3 REPORT: SOCIETY AND ECONOMY
PUERTO RICO CLIMATE CHANGE COUNCIL - DRAFT - NOT FOR DISTRIBUTION OR CITATION

Tourism

SIDS can be viewed as "Gardens of Eden", "luxurious destinations" - in other words, tourism hotspots. Puerto Rico's miles of coast providing beach, sand, and sun to tourists is part of Puerto Rico's economic well-being and is the The features of Puerto Rico that are the economic coral reefs, mangroves, rainforests, etc. are extremely temperatures, along with warmer winters in north of tourist visits, especially when combined with and the destructive forces of stronger hurricanes

Sea Level Rise and Tourism

A rise in sea level would negatively affect the tourism sector

WORKING GROUP 2 REPORT: ECOLOGY AND BIODIVERSITY
PUERTO RICO CLIMATE CHANGE COUNCIL - DRAFT - NOT FOR DISTRIBUTION OR CITATION

XIII. Marine Mammals

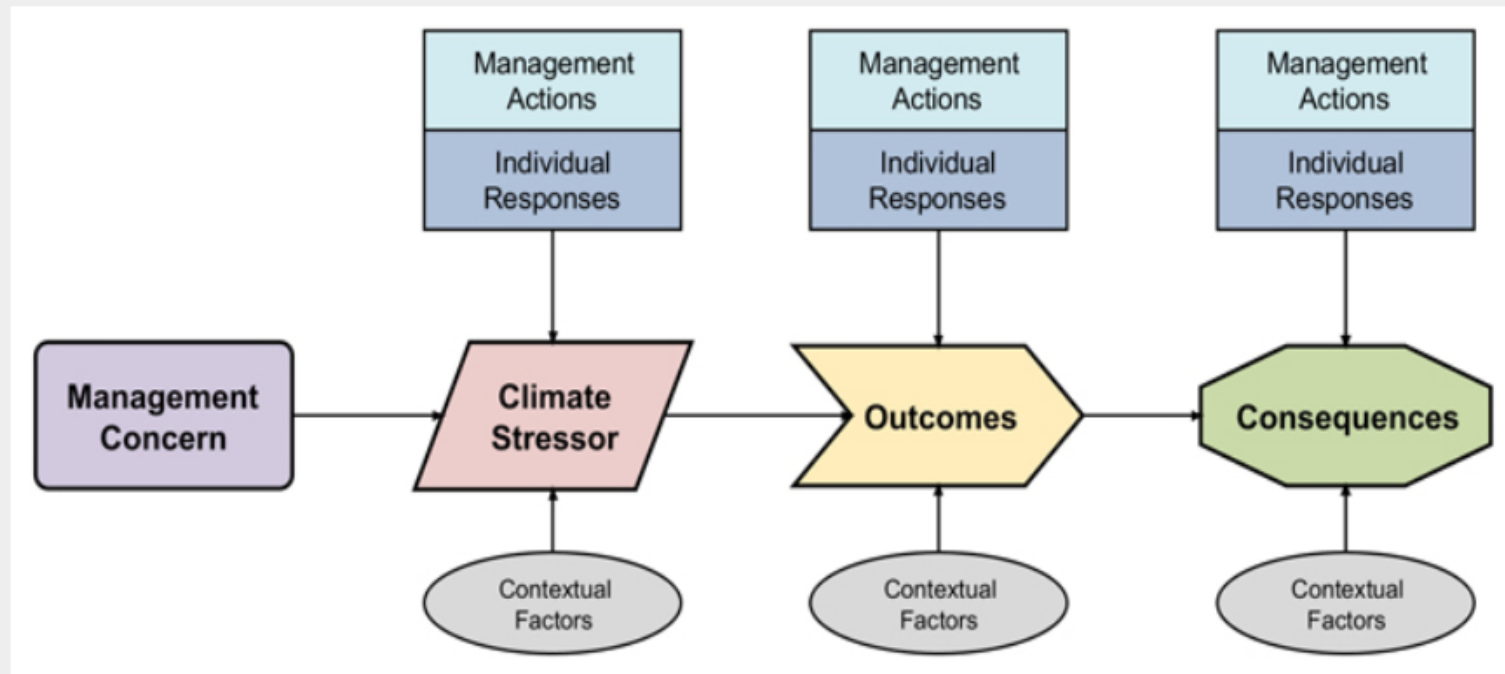
Nilda Jimenez

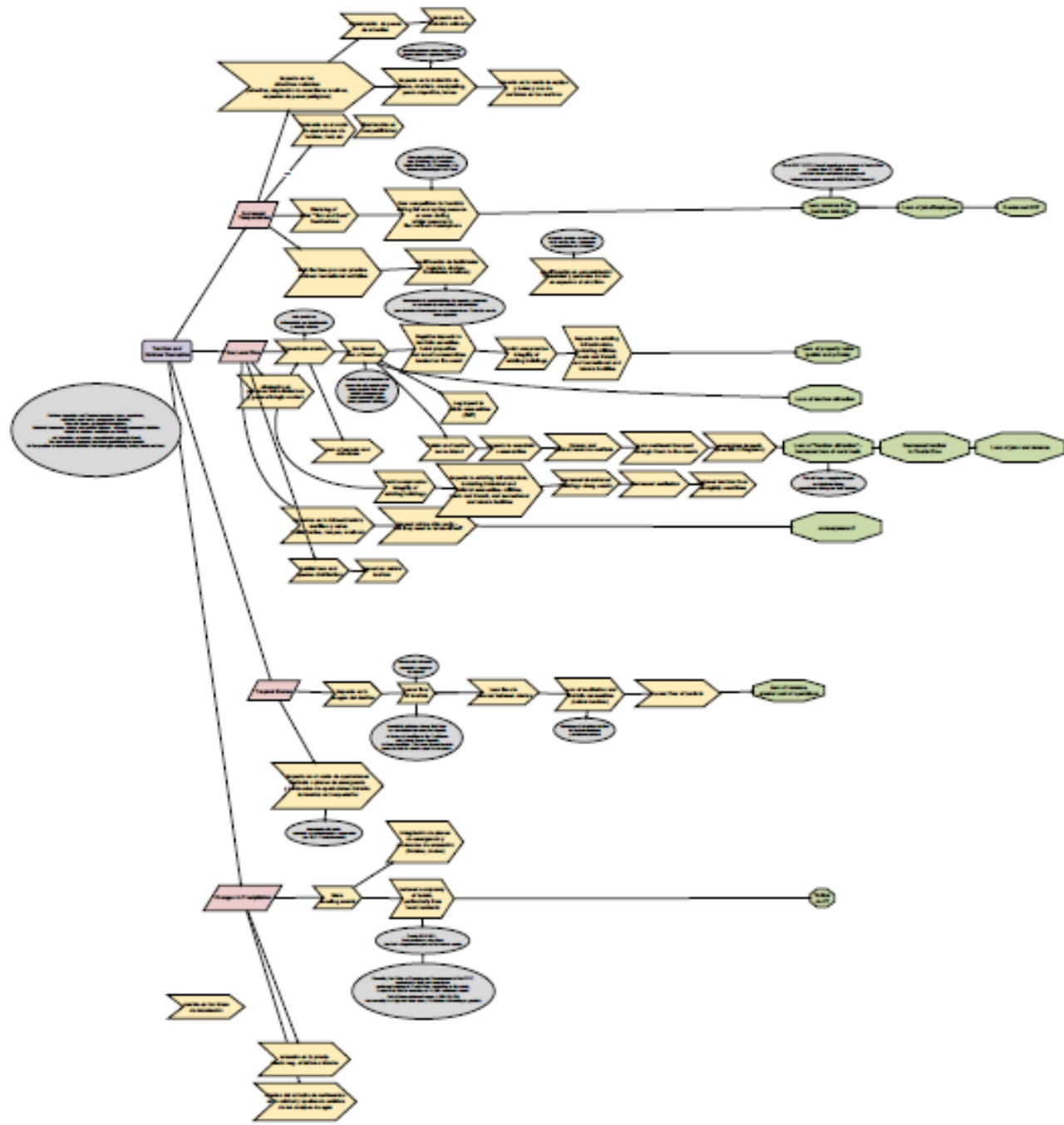
INTRODUCTION (Taken from UNEP)

The marine mammal fauna of the Wider Caribbean Region (WCR) is diverse, and marine mammals have significant ecological, aesthetic and economic value to the countries and territories of the region. Regional success in managing and conserving marine mammals will ultimately depend in the first instance on countries' commitment to build their internal capacities and to implement a regional concept by establishing conservation priorities, standards, and strategies for marine mammal conservation and education.

At least 32 species of marine mammals have been documented from the region—six species of baleen whales (Mysticeti), 24 species of toothed whales (Odontoceti), one species (the West Indian manatee), and three pinnipeds (the Caribbean monk seal, the California sea lion). For many of these species, waters of the region are critical activities that include feeding, mating and calving.

VCAPS diagrams: Building blocks





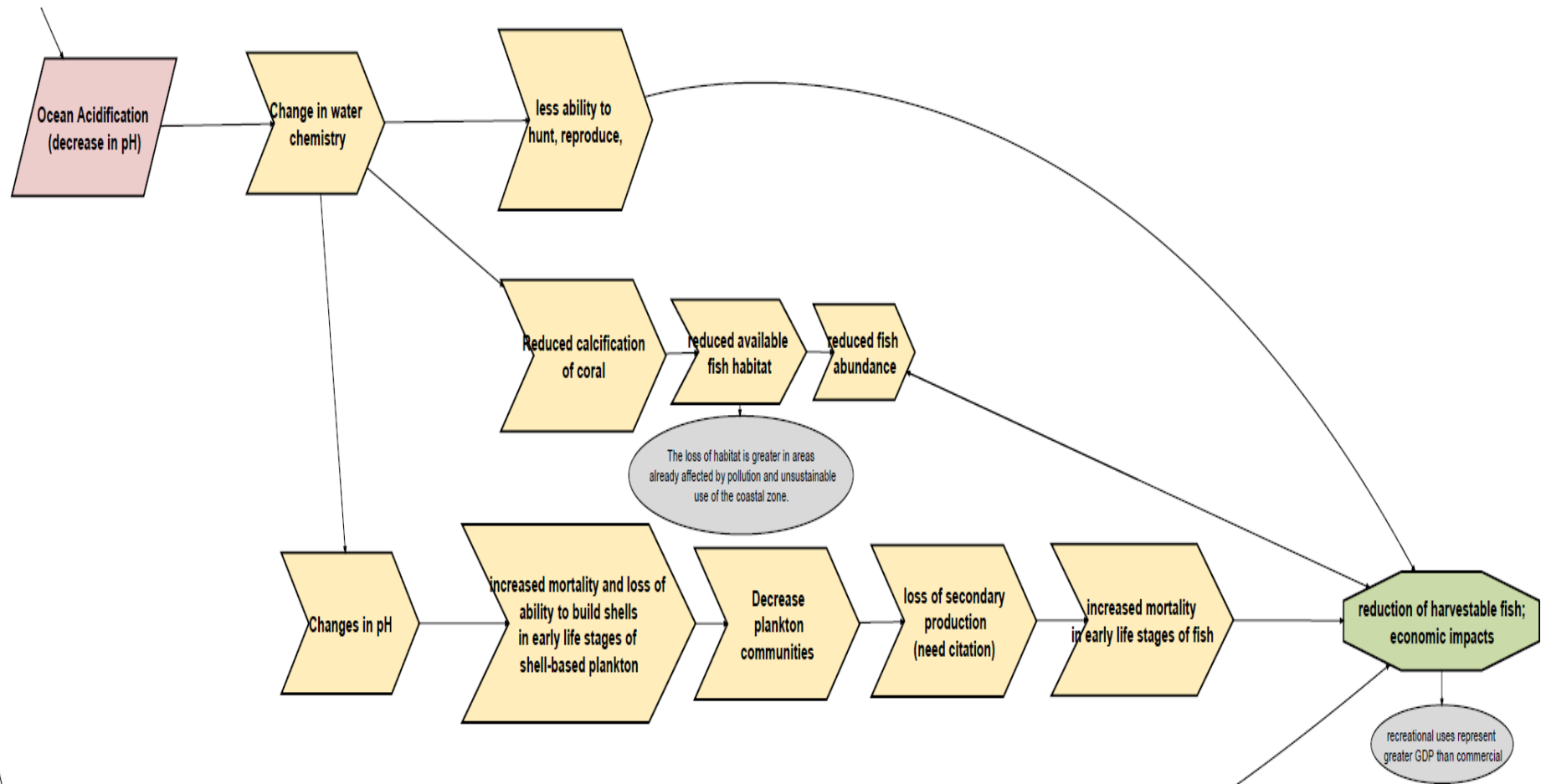
WG 2 Coral Reef Subcommittee Meeting



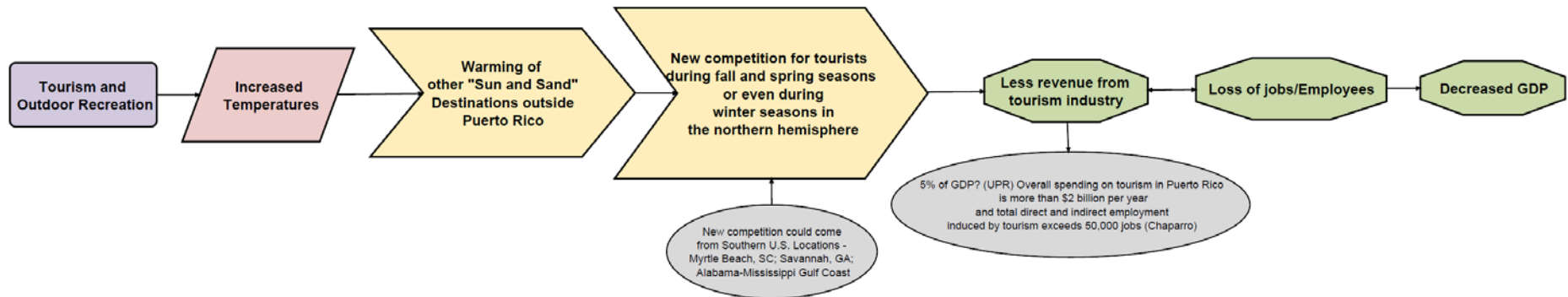
WG 2 Coral Reef Subcommittee Meeting

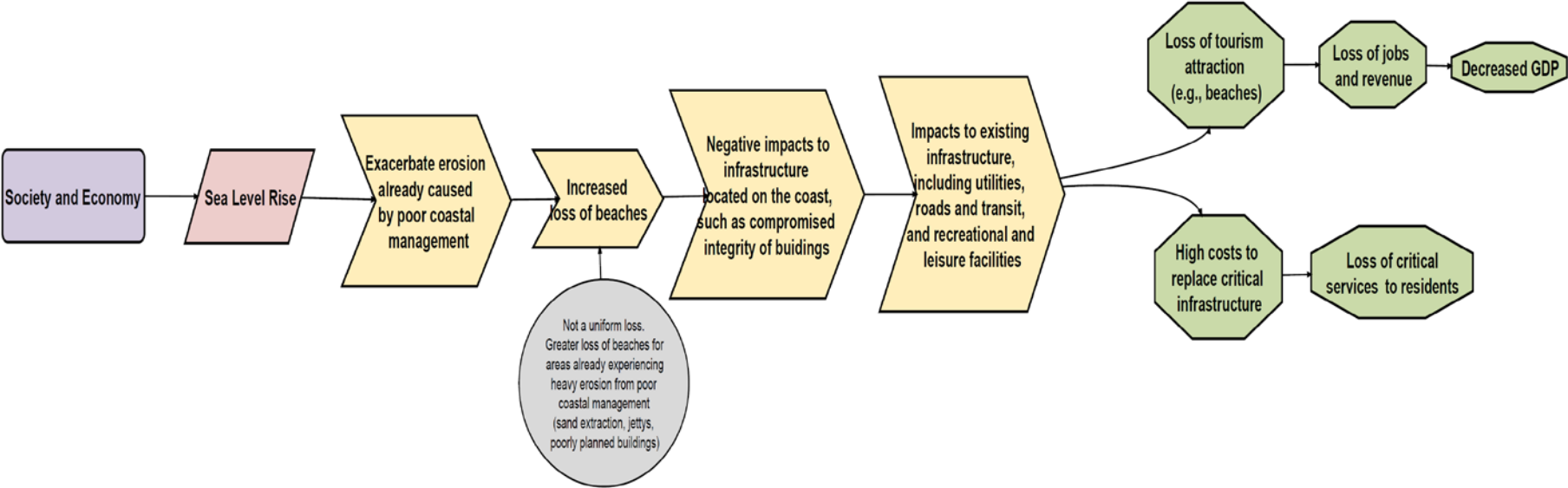


VCAPS Diagram – Coastal Fish



VCAPS Diagram – Tourism





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**March
2012**



TALLERES PARA LA EVALUACIÓN DE RIESGOS ACTUALES Y FUTUROS EN LA ZONA COSTANERA

- ☐ Erosión
- ☐ Tormentas y marejadas
- ☐ Inundaciones fluviales y costeras
- ☐ Lluvias y sequías más intensas
- ☐ Efectos del cambio climático
- ☐ Estrategias de adaptación

6 de marzo de 2012

(Municipios costeros del norte)
Embassy Suites, Dorado

8 de marzo de 2012

(Municipios costeros del sur)
Ponce Hilton, Ponce

Ambos talleres serán de 8 a.m. a 4 p.m.

RSVP: 787-999-2200 x.2729 / 2730





Desired Outcomes:

- Well-informed municipal representatives on PRCCC and climate risks to Puerto Rico
- Agreed upon risk information and risk matrices (or in the least the appropriate information for the PRCCC to create risk matrices)
- List of municipal recommendations to the PRCCC Working Groups
- Lists of knowledge gaps and other information to guide the process from 2012 to 2013
- List of brainstormed adaptation strategies at the municipal level

Validating Draft Vulnerability Assessment: Summary information into “Strawman” Proposal

Planning Area	Features	Climate Drivers	Implications for Feature	Risk Category (Magnitude x Frequency)	Time Urgency (When Needs to be Addressed)
Water Resources	Surface Water Resources (lakes, reservoirs, dams, rivers, wetlands, streams and canals)	Precipitation Temperature Storms	<ul style="list-style-type: none"> Water storage impacted Electrical power generation impacted Increased flooding 		2080
	Dams, Reservoir, Hydropower	Changes in Precipitation	<ul style="list-style-type: none"> Dam failure Safety and contingency planning 		
	Irrigation and Drainage Infrastructure	Changes in Precipitation Temperature	<ul style="list-style-type: none"> Increased need for irrigation from dams, reservoirs, and diversions to meet demand Drainage ditches under capacity during heavy rainfall events 		2050
	Groundwater Subsurface	Precipitation Level Rise	<ul style="list-style-type: none"> Water storage impacted Increased drought Increased Water Pollution Aggravate water conflicts by 		2020

Instalaciones y Edificios Públicos
(gobierno, educación, salud, parques culturales, áreas recreativas, etc.)

Características (Barreras naturales de captación)

Consecuencias de riesgos actuales y futuros:

- Daño estructural a los edificios
- Algunas limitaciones técnicas para hacer frente a las fallas podrían poner en peligro a los ocupantes, equipo, y materiales en instalaciones y edificios públicos
- Interrupción o limitación en la prestación de servicios
- Costos adicionales en la prestación de servicios
- Estructuras que fueron diseñadas para los parámetros actuales podrían ser inundadas por aumentos en las tasas de precipitación y un aumento del nivel del mar en el futuro
- La aceleración de los procesos de erosión puede exponer las capas de relleno en los vertederos, liberando productos químicos y basura en el mar y vías navegables
- Más inundaciones y pérdida de barreras naturales



Instalaciones y Edificios Públicos

(gobierno, educación, salud, parques culturales, áreas recreativas, etc.)



Estructuras de propiedad privada

(viviendas unifamiliares y múltiples, edificios de oficinas, hoteles, edificios comerciales, estaciones de gasolina, y centros comerciales)



Infraestructura de Generación de Energía

(Plantas de generación de energía; infraestructura de transmisión e infraestructura de distribución)



Infraestructura de aguas usadas y escorrentia

Estructuras de recolección y transporte (canales, tuberías, bombas, alcantarillas, arroyos urbanos, quebradas); estructuras de captación (estanques, lagos urbanos, y sistemas de recolección de agua de lluvia), estructuras de control de calidad (por ejemplo, desarenadores); estructuras de almacenamiento, sistemas de desbordamiento de aguas residuales y pluviales, plantas de tratamiento y sistemas de descarga de aguas tratadas.



Transporte

(puertos, carreteras, puentes)



Suministro de Agua

(recursos de agua superficial, aguas subterráneas y del subsuelo; acuíferos costeros; represas y energía hidroeléctrica)



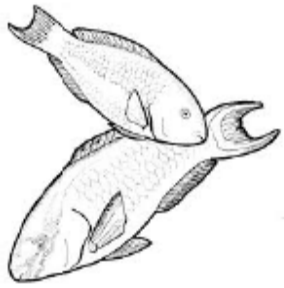
Servicios de Agua

estructuras de almacenamiento, procesamiento y distribución de agua potable (tuberías principales de agua, etc.)



Recursos de Agua para Irrigación y Drenaje

(infraestructura para irrigación y drenaje)



Características naturales que protejan la costa
(Barreras naturales, como manglares, dunas, rocas o arrecifes de coral)



Recursos Históricos y Culturales
(lugares de interés histórico y significado cultural)

30/44 coastal municipalities attended



Co-Facilitated North and South Coast Workshops with TNC



Conservando la naturaleza.
Protegiendo la vida.

And with volunteer breakout discussion facilitators from:



Fideicomiso de Conservación de Puerto Rico
Conservation Trust of Puerto Rico





Mesa 4

Dorado
Toa Baja
Cataño



MESA 5

- GUAYNABO
- SAN JUAN
- CAROLINA
- LOIZA

VÍCTOR →



MESA 5

- GUAYNABO
- SAN JUAN
- CAROLINA
- LOIZA

VÍCTOR —





Mesa 3
Quánica
Guaymas



Municipal Exposure

- [Camuy, Hatillo, Barceloneta example](#)

Desarrollo en áreas de alto

1- Sistema de Construcción (Leyes y Reglamentos)

Investigación
y
Diseño

Alarmas y difusión a la Ciudadanía
tanto

como el uso a una Facilidad Pública
Ej: Parque Polanco

Priority Vulnerabilities



Grupo 1

Necesidades

- 1- Servicios médicos para atender traumas mayores (pesados, personal y vehículos)
 - 2- Equipos para responder en caso de emergencia
 - 3- Capacidad de mantener orden y seguridad luego de un desastre
-
- Recursos económicos para todo lo anterior
 - Aumentar la educación de la población

Priority Vulnerabilities

COMUNES

- AEE (Autoridad Energía Eléctrica)
 - AAA (acueductos y alcantarillados) y alcantarilla (afectaciones a las subestaciones)
 - Inoperabilidad del aeropuerto
-
- Sistema acantarrillado pluvial (Aguadilla)
 - Planta de tratamiento de aguas usadas (inoperante) y nivel mar (Isabela)
 - Vías, carreteras - si se inundan las comunidades quedan aisladas (Rincón)

ESPECÍFICOS POR MUNICIPIO

Resumen de
mun
Top (3) Priority Vuln
1)

Curbo T

MANEJO DE ESCORRE

- (1) Plan De Manejo Actualizado
- (2) Programa Educativo adaptado a toda la
- (3) Personal/Equipo para la evaluación e implen
del plan
- (4) Identificar las Descargas/en lugares Cr
- (5) Coordinación de Limpiezas Descargas Pluv
- (6) Monitoreo Proyectos de Construcción para
cumplir con los Planes: CEST, siembra, y Refructa
- (7) Crear grupo de voluntarios (Jovenes Consorcio, Niña
para que identifique y notifique sobre Descargas ileg
a los sistemas.
- (8) Limpieza de Escombros
Implementación de leyes y Reglamentos

Combined Workshop Results with Working Group 3 Expertise

[PRCCC Risk Matrix](#)

Área de planificación	Puntuación promedio de riesgo	Factor climático
Características naturales que protejan la costa (barreras naturales como manglares, dunas, rocas o arrecifes de coral)	Alto 11.63	Precipitación, Temperatura, Tormentas, Acidificación
Estructuras de propiedad privada (viviendas unifamiliares y múltiples, edificios de oficinas, hoteles, edificios comerciales, estaciones de gasolina, centros comerciales, etc.)	Alto 11.38	Nivel del mar, Tormentas
Instalaciones y edificios públicos (gobierno, educación, salud, parques culturales, áreas recreativas, etc.)	Alto 10.90	Nivel del mar, Tormentas
Infraestructura de aguas usadas y escurrentía: estructuras de recolección y transporte (canales, tuberías, bombas, alcantarillas, arroyos urbanos y quebradas), estructuras de captación (estanques, lagos urbanos y sistemas de recolección de agua de lluvia), estructuras de control de calidad (por ejemplo, desarenadores), estructuras de almacenamiento, sistemas de desbordamiento de aguas residuales y pluviales, plantas de tratamiento y sistemas de descarga de aguas tratadas	Alto 10.60	Precipitación, Temperatura, Tormentas
Transporte (puertos, carreteras, puentes)	Alto 10.31	Precipitación, Nivel del mar
Infraestructura de generación de energía (plantas de generación de energía, infraestructura de transmisión e infraestructura de distribución)	Alto 9.57	Nivel del mar, Tormentas
Servicios de agua (estructuras de almacenamiento, procesamiento y distribución de agua potable (tuberías principales de agua, etc.)	Mediano 8.86	Precipitación, Temperatura, Tormentas
Suministro de agua (recursos de agua superficial, aguas subterráneas y del subsuelo, acuíferos costeros, represas y energía hidroeléctrica)	Mediano 8.65	Precipitación, Temperatura

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- External peer-review
- Final design and layout
- Publish in Spanish and English

**Jan
2013**

Recommend adaptation strategies and implement outreach plan

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- Finalize reports and create executive summaries
- Outreach and education of the key vulnerabilities and adaptation options for Puerto Rico

**August
2013**

Literature Review and New Analyses



Temperatura



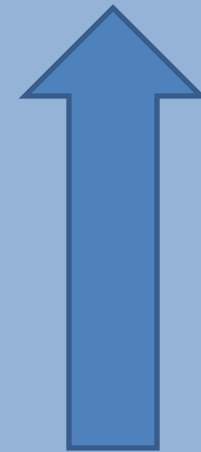
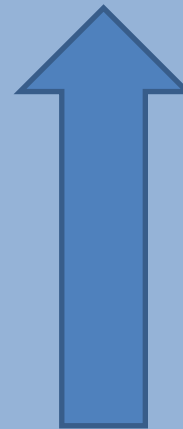
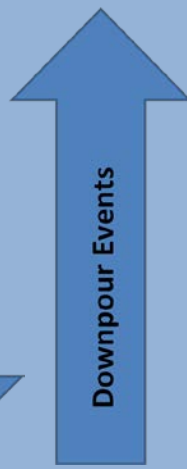
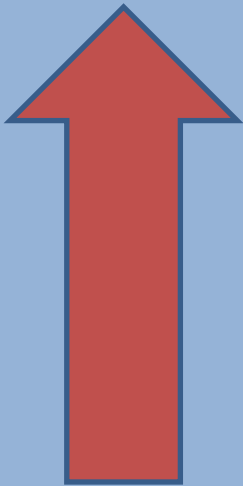
Precipitación



El Nivel del Mar

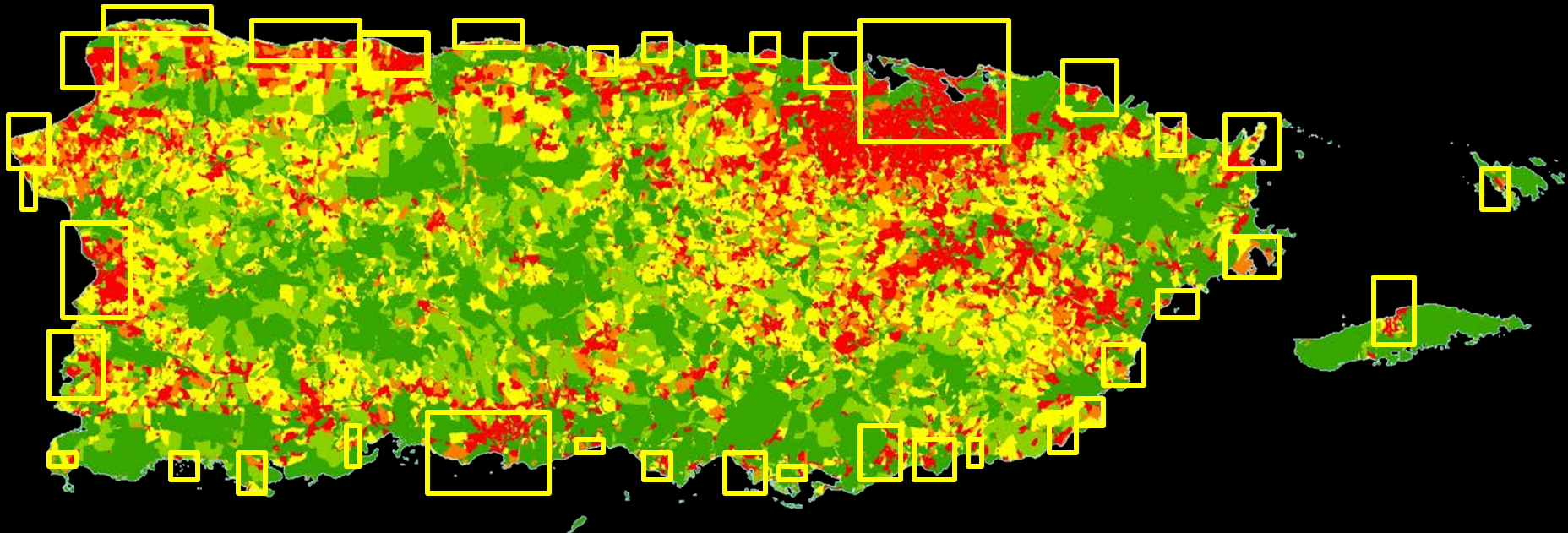


Tormentas



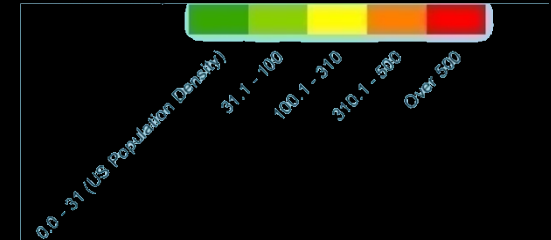
Population density

Puerto Rico's population density per square miles is among the world's highest, only Bangladesh, The Maldives, Barbados, Taiwan, South Korea and the city-states of Hong Kong and Singapore are more crowded.

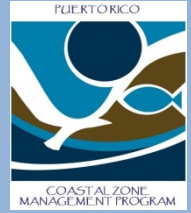


24% urban / coastline ratio

4,300 vehicles per mile², 146 per paved mile (highest in the World)



Critical Infraestructure / CZ jurisdiction (1 Km)



- Eight ports

- Eight airports

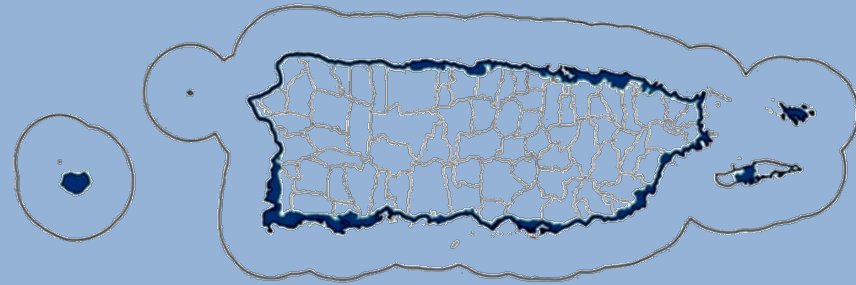


- Six Power Plants

- 1,080 miles of sanitary infrastructure

- 81 industrial parks

- 114 miles of primary roads











Our “First Lines of Defense” are Disappearing







Fajardo – Lluvias del 17 de abril de 2003









**2011 Downpour in
Mayaguez, PR: Flooding
after only 30 minutes of rain**





Foto por R. L. Jogle



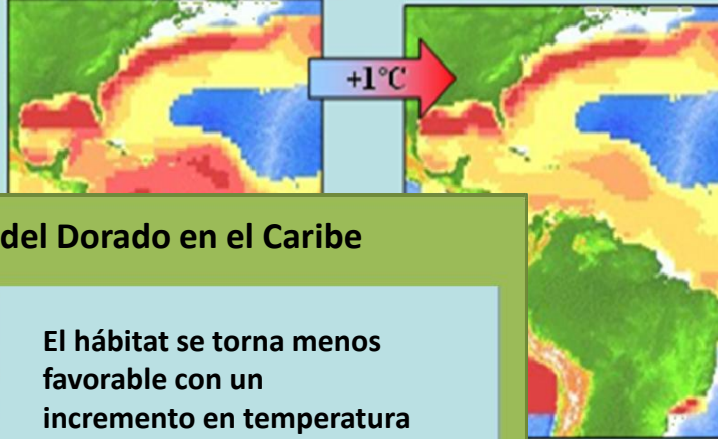




Pérdida de hábitat del Atún aleta amarilla en el Caribe



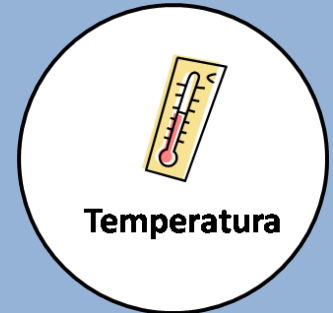
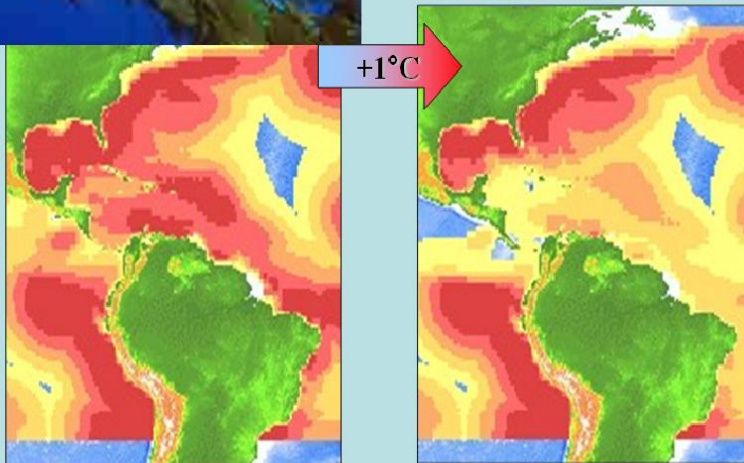
El hábitat se torna menos favorable con un incremento en temperatura de 1°C



Pérdida de hábitat del Dorado en el Caribe



El hábitat se torna menos favorable con un incremento en temperatura de 1°C



The red ocean portions represent adequate habitat for the species before and after an increase of 1 deg C.

Courtesy of Caribbean Community Climate Change Centre

Contact

Amistad

Goldeneye

Dirty Dancing 2: Havana Nights

Ché



Bad Boys 2

A Perfect Getaway

One Tree Hill

Pirates of the Caribbean 4:

On Stranger Tides

Fast Five

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After you have been here a few days, don't be surprised when your mind starts telling you to extend your Puerto Rico vacations. Whether you stay at an elegant San Juan-area hotel, or a Parador in our countryside, it's a common experience to find yourself not wanting to go home.

[Learn more about the Green Hotel Certification](#)

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TOLL FREE NUMBER
1-800-866-7827OR CHAT WITH ONE OF OUR AGENTS
THROUGH OUR[LIVE CHAT](#)

WEATHER REPORT

92°
F
San Juan

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SOCIAL VULNERABILITY

- Island-wide Income per capita (2013) \$17,655
- 45% of island below the poverty level (U.S. @ 15%)
- Example: Municipality of Loíza:
 - Low-lying
 - High social vulnerability (Loiza barrios on the coast scored 23-29)
 - Ex: Educational level in Barrio Torrecilla Baja at Loíza is mainly high school degree. Sixty nine percent (69%) living in poverty level (entire Island 49%)²
 - No critical infrastructure other than homes, schools and a health center (on coast)
 - Residential
 - Inundation issues already experienced
 - Low adaptive capacity within municipal government and the community
 - Not a “tsunami-ready community”



Hurricane Irene 2011 in Loíza



SOCIAL VULNERABILITY

- **'Don't Give Up On Us': Puerto Ricans Wrestle With High Crime** NPR Story February 7, 2013
- *Puerto Rico's population is declining. Faced with a deteriorating economy, increased poverty and a swelling crime rate, many Puerto Ricans are fleeing the island for the U.S. mainland. In a four-part series, Morning Edition explores this phenomenon, and how Puerto Rico's troubles are affecting its people and other Americans in unexpected ways.*
- *Puerto Rico's per capita murder rate is six times that of the U.S. as a whole. And with violence escalating, many residents are considering joining the thousands of others who have already fled the island for brighter and safer opportunities.*
- Yesterday study – 33rd highest crime in World



Health

- **Climate sensitive conditions³:**
 - *Cardiovascular* disease leading cause of death,
 - *Asthma*^{4, 5}. Rate is 113% higher than non-Hispanic whites and 50% higher than non-Hispanic black. The *Prevalence* and mortality of asthma attack is highest among Puerto Ricans and up to 41.3% in children
 - *Hypertension, diabetes* and *asthma* comprise 46% of demand for health services
- **Altered seasonal distribution of some allergenic pollen species (IPCC¹: high confidence)**
 - Puerto Rico: most aeroallergens are fungal spores⁷; no proven effect of carbon dioxide in spore's allergenicity. Increased wind speed and humidity (hurricanes/storms) may enhance spore spread. Thunderstorms and asthma exacerbations have been correlated with a doubling of ambient fungal spores⁸.
- **Increased malnutrition and consequent disorders, including those relating to child growth and development (IPCC¹: high confidence)**
 - Vulnerability not assessed but 45% of population under national poverty level. Sociopolitical relation with the U.S. may ameliorate impact.



Risk Assessment Workshops with Municipalities

- Risk Assessment Workshops with 44 Coastal Municipalities
- Purpose: to collect risk information for infrastructure and naturally-protective features at the municipal level; to validate content from island-level assessment, identify gaps, and begin collecting adaptation strategies
- Outputs: Risk Matrices of Infrastructure Assets most at-risk



Complete Vulnerability Assessment

- Complete Draft Vulnerability Assessment Report
- External peer-review
- Final design and layout
- Publish in Spanish and English



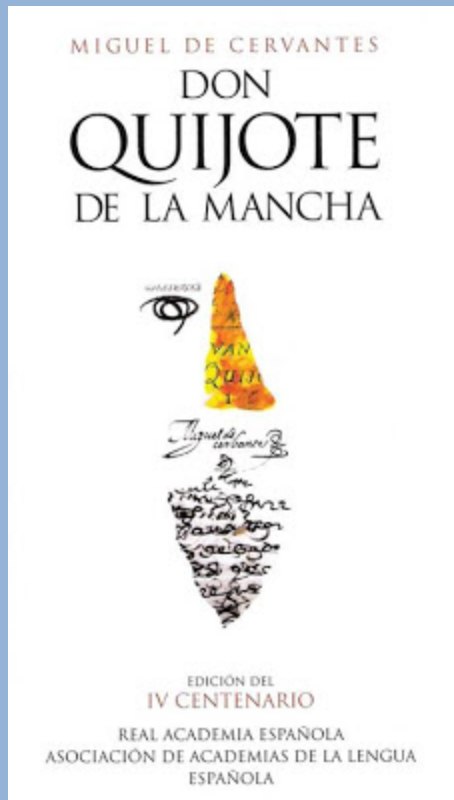
Recommend adaptation strategies and implement outreach plan

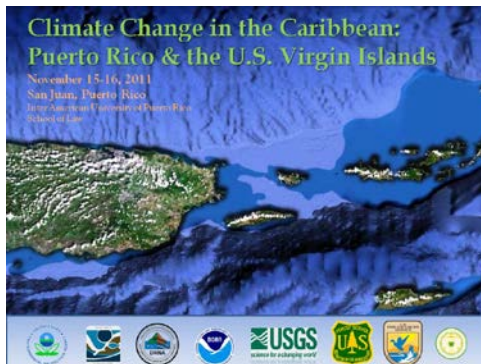
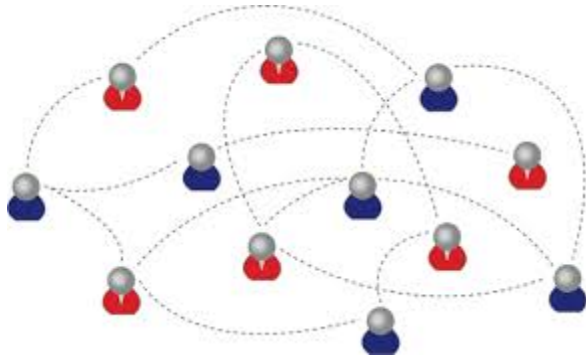
- Identify/develop, evaluate, and prioritize adaptation strategies and policies through workshops and expert advice
- Finalize reports and create executive summaries
- Outreach and education of the key vulnerabilities and adaptation options for Puerto Rico

**August
2013**

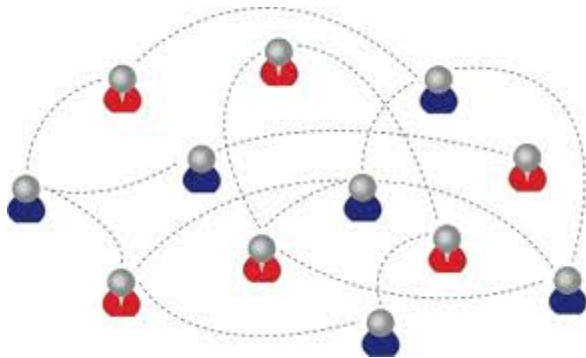


¿Quijotesco?



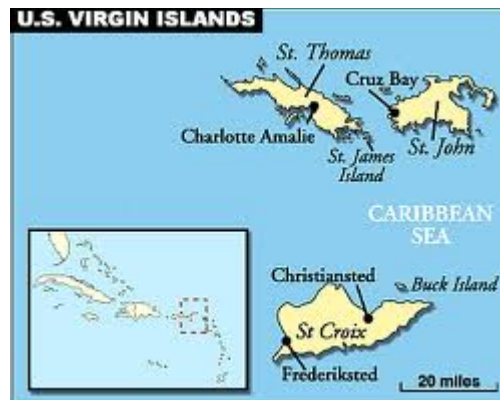


Quijotesco
or a
Success?



Quijotesco
or a
Success?

**5 Executive Orders
and
8 Adaptation Pilots**





Gracias por su tiempo!

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Visit Webpage:
www.drna.gobierno.pr



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